

**Rolling Knolls Landfill Superfund SITE**  
**FIELD CHANGE REQUEST (FCR) FORM**

**Contract No.:**

REQUEST NO: \_\_\_\_\_ 06 \_\_\_\_\_

DATE: 04/22/2015 (revised 05/19/2015)

FCR TITLE: Monitoring Well Location and Installation Method Modification

**DESCRIPTION:**

The Data Gaps Sampling and Analysis Plan (Data Gaps SAP) proposed installation of seven permanent monitoring wells (MW-11 through MW-17). The Data Gaps SAP indicated the final locations of the permanent monitoring wells will be determined based on the results of the soil sampling and the temporary monitoring well samples collected as part of the data gap sampling. These data, and a proposal for the locations of the permanent monitoring wells, were transmitted to USEPA for review and approval on February 17, 2015. Additional information was transmitted to USEPA on February 27, 2015. The USEPA responded on March 5, 2015 and requested adjustments to the locations of MW-12 and MW-15. At this time the USEPA also requested the addition of three additional monitoring wells (MW-18 through MW-20).

**REASON FOR DEVIATION:**

Prior to installation of the monitoring wells ARCADIS personnel and a USEPA representative inspected each proposed monitoring well location. Proposed locations for MW-13, MW-14, MW-18 and MW-20 were found to be in approximately 6 to 24 inches of standing water. These locations should be moved to areas with no standing water. The initial proposed and revised locations of these wells are included on the attached figure. The approximate distance each monitoring well will be moved compared to the location approved by USEPA on March 5, 2015 is included in Table 1 and described below.

The revised locations may still be within wet areas and will not permit access and/or installation using the track mounted geoprobe and methods describe in the SAP. In accordance with the email from USEPA on March 30, 2015 alternate monitoring well installation methods are proposed below for monitoring wells that cannot be installed with a track mounted geoprobe.

In addition, access for one location (MW-12) requires crossing potential bog turtle habitat. The Best Management Practice (BMP) transmitted by United States Fish and Wildlife Service (USFWS) on April 15, 2015 restricts access to potential bog turtle habitat using heavy equipment. As such, MW-12 can likely not be installed using the track mounted geoprobe. An alternative monitoring well installation method is proposed for this monitoring well.

**RECOMMENDED MODIFICATIONS:**

Monitoring well MW-13 should be moved approximately 100 feet (ft) to the northwest. This location would likely shift the monitoring well to drier ground and still achieve the objective of characterizing constituent concentrations in groundwater downgradient of soil samples SS-157 and SS-158.

Monitoring well MW-14 should be moved approximately 140 ft to the west. This location would likely shift the monitoring well to drier ground and still achieve the objective of characterizing constituent concentrations in groundwater in the vicinity of soil samples SS-135, SS-136, and SS-137.

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Monitoring well MW-18 should be moved approximately 200 ft to the east. This location would likely shift the monitoring well to drier ground and still achieve the objective of characterizing constituent concentrations in groundwater downgradient of monitoring well MW-10.

Monitoring well MW-20 should be moved approximately 140 ft to the east. This location would likely shift the monitoring well to drier ground and still achieve the objective of characterizing constituent concentrations in groundwater in the vicinity of soil samples POI-6, POI-14, SS-144, and SS-160.

If ground conditions are such that the permanent monitoring wells cannot be installed using a track-mounted geoprobe as described in the SAP, a winch mounted on a tripod will be used. A 2-inch diameter macrocore, split-spoon sampler or other coring method will be advanced at the well location to approximately 20 ft below ground surface (bgs). The cores will be removed and logged as described in the SAP. When logging is complete an 8-inch diameter steel or PVC casing will be driven approximately 2 feet into the stable substrate underlying the wet area. This casing will act to keep the surrounding surface water out of the borehole during monitoring well installation. A hand auger, water-rotary drilling, or other means will be used to advance a 6-inch diameter borehole to the well completion depth.

If USFWS does not allow heavy equipment to cross potential bog turtle habitat, the well installation method described above may also be used for MW-12.

The well construction methods will be similar to the SAP. The well will be constructed using 2-inch PVC screen and riser with a sand filter pack around the well screen. The screen interval may be shortened to 5 ft in length. The annular space above the sand filter pack will be filled with a bentonite/cement grout to seal out surface water. The bentonite/cement grout will extend 1 to 2 ft below the bottom of the 8-inch casing, and will fill the annular space between the 2-inch PVC pipe and the 8-inch casing. A locking protective stick up casing will be installed around the 2-inch PVC pipe.

If a permanent monitoring well cannot be installed using the method described above a temporary well point may be installed for the purpose of collecting a groundwater sample. Temporary well points will be constructed using a screen-point sampler driven into the material below the surface water. The drill rod will act as a temporary casing to keep the surrounding surface water out of the screened interval. The depth of the screen will depend on the lithology observed in the cores. A groundwater sample will be collected from this temporary point. Following sample collection, the well point will be abandoned in accordance with NJDEP regulations.

**IMPACT ON PROJECT OBJECTIVES:**

The revised monitoring well locations and installation methods meet the project objective of collecting representative groundwater samples to characterize constituent concentrations in groundwater.

Dated Signatures:



04/22/2015 05/19/2015

(Field Team Leader)

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**Contract No.:**



04/22/201505/19/2015

(Project Manager)

Distribution:

T. Mitchell, EPA Remedial Project Manager  
Quality Assurance Coordinator

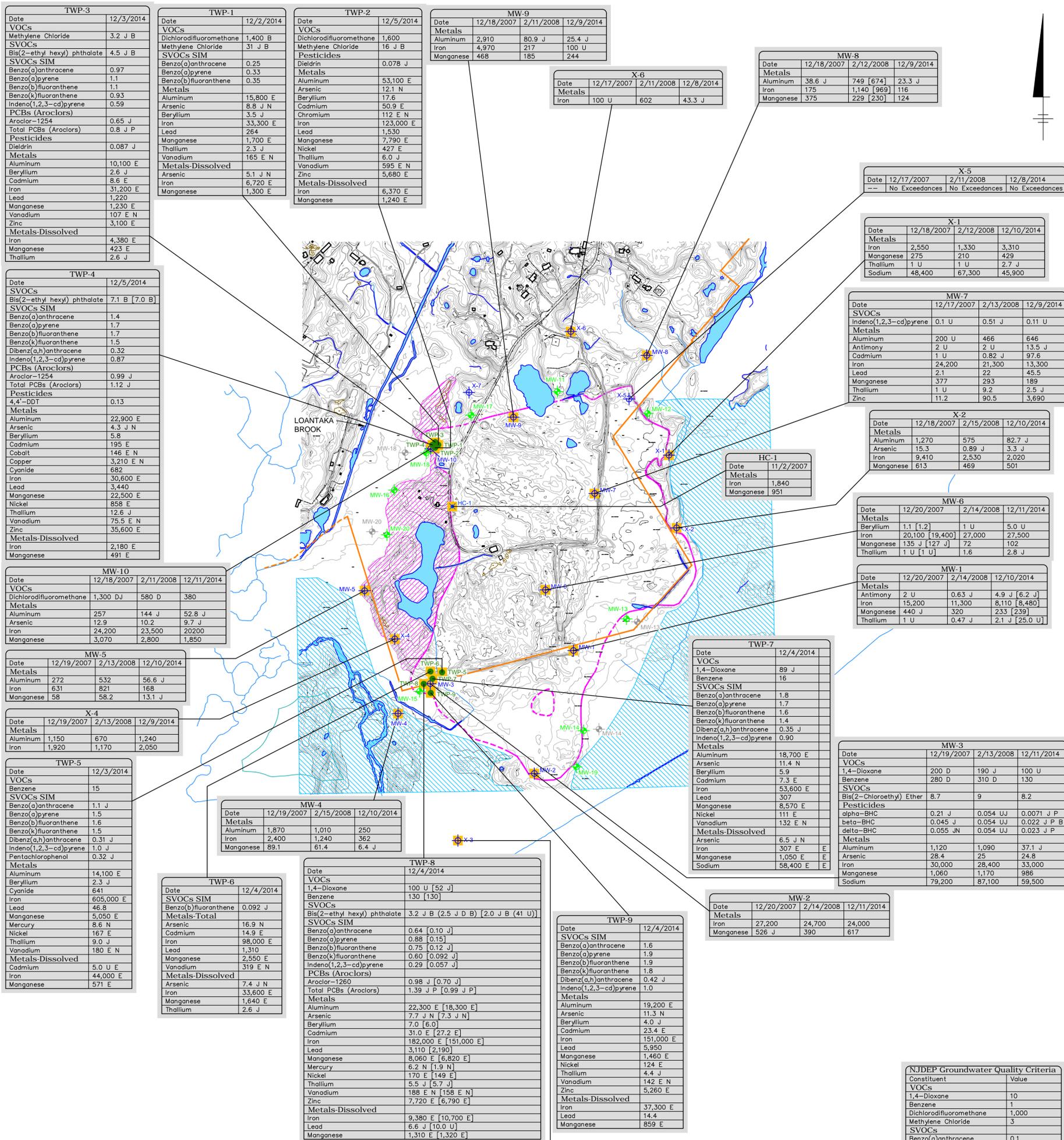
RI Task Leader  
Project File

**Table 1**  
**Monitoring Well Locations Modification FCR 06**  
**Rolling Knolls Landfill Superfund Site**  
**Chatham, New Jersey**

<b>Well Number</b>	<b>Initial Proposed Location</b>	<b>Revised Proposed Location</b>	<b>Distance and Direction Moved</b>	<b>Rationale</b>
MW-13	Southeast landfill boundary, 100 feet southeast of soil sample SS-158	34 feet southwest of soil sample SS-158	100 feet northwest	Provides monitoring in vicinity of PCBs detected in soil samples SS-157 and SS-158.
MW-14	Southeast landfill boundary, 150 feet southeast of SS-136	Southeast of landfill boundary, 110 feet south of SS-136	140 feet west	Provides monitoring in the vicinity of PCBs detected in soil samples SS-135, SS-136, and SS-137.
MW-18	Northwest landfill boundary, 240 feet west of MW-10	Northeast landfill boundary, 60 feet southwest of MW-10	200 feet east	Characterize constituent concentrations in groundwater downgradient of monitoring well MW-10.
MW-20	Northwest landfill boundary, 300 feet west of POI-14	Northwest landfill boundary, 160 feet west of POI-16	140 feet east	Characterize constituent concentrations in groundwater in the vicinity of soil samples POI-6, POI-14, SS-144, and SS-160.

Well numbers and initial proposed locations are from the Data Gaps Sampling and Analysis Plan, approved by USEPA in November 2014, and from the email from USEPA on March 30, 2015.

XREFS: IMAGES: PROJECTNAME: ----  
 33203X01  
 B003203X15  
 B003203XPD



**LEGEND:**

- OPEN WATER
- EDGE OF LANDFILLED WASTES OBSERVED DURING TEST PIT ACTIVITIES (DASHED WHERE APPROXIMATE)
- GREAT SWAMP NATIONAL WILDLIFE REFUGE PROPERTY BOUNDARY (DASHED WHERE APPROXIMATE)
- WASTE AND DEBRIS OBSERVED ON GROUND SURFACE BUT NOT OBSERVED OR ANTICIPATED TO BE BELOW GROUND SURFACE
- AREAS WHERE SURFACE WATER FLOW DOES NOT EXHIBIT TYPICAL BED AND BANK MORPHOLOGY
- PROPOSED MONITORING WELL (PREVIOUS LOCATIONS SHOWN IN GREY)
- EXISTING MONITORING WELL LOCATION
- DATA GAP TEMPORARY WELL LOCATION
- EXISTING WELL LOCATION
- WELL LOCATION WITH DETECTED CONCENTRATIONS GREATER THAN NJDEP GROUNDWATER QUALITY CRITERIA

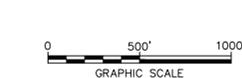
**DATA NOTES:**  
 UNITS = MICROGRAMS PER LITER  
 [ ] = DUPLICATE SAMPLE  
 ( ) = RESULTS OF SECONDARY ANALYSIS  
 SVOCs = SEMI-VOLATILE ORGANIC COMPOUNDS  
 VOCs = VOLATILE ORGANIC COMPOUNDS  
 B = THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS ITS ASSOCIATED BLANK.  
 D = CONCENTRATIONS IDENTIFIED FROM ANALYSIS OF THE SAMPLE AT A SECONDARY DILUTION.  
 E = FOR INORGANICS THE REPORTED VALUE IS ESTIMATED DUE TO INTERFERENCE RESULTING FROM SERIAL DILUTIONS.  
 J = FOR ORGANICS THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.  
 U = FOR INORGANICS THE SAMPLE RESULT IS GREATER THAN THE MDL BUT BELOW THE CRDL.  
 N = FOR ORGANICS THE ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION. THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.  
 P = FOR INORGANICS THE SPIKED SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS.  
 Q = DUAL COLUMN ANALYSIS RESULTED IN GREATER THAN 25% DIFFERENCE FOR DETECTED CONCENTRATIONS BETWEEN THE TWO COLUMNS.  
 U = THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.

**NOTES:**

- ANALYTICAL RESULTS GIVEN IN MICROGRAMS PER LITER FOR GROUNDWATER SAMPLES WITH DETECTED CONCENTRATIONS GREATER THAN NEW JERSEY GROUNDWATER QUALITY CRITERIA (DATED JULY 2010).
- THE EDGE OF LANDFILLED WASTES OBSERVED DURING TEST PIT ACTIVITIES IS DRAWN BASED ON OBSERVATIONS OF MATERIALS EXCAVATED DURING TEST PIT ACTIVITIES CONDUCTED FROM JULY 26, 2007 TO SEPTEMBER 6, 2007 AND MARCH 26, 2008. THE EDGE OF THE LANDFILL WAS REFINED BASED ON OBSERVATIONS PRESENTED IN THE FIELD CHANGE REQUEST (FCR-02) APPROVED BY USEPA ON DECEMBER 29, 2014.
- THE EXTENT OF AREAS WHERE SURFACE WATER FLOW DOES NOT EXHIBIT TYPICAL BED AND BANK MORPHOLOGY IS BASED ON FIELD OBSERVATIONS MADE THROUGHOUT THE PERIOD OF INVESTIGATION ACTIVITIES. THE EXTENT OF THE AREA SHOWN IS APPROXIMATE.
- MONITORING WELL X-7 WAS DAMAGED AND COULD NOT BE SAMPLED.
- DATA GAP ANALYTICAL RESULTS HAVE NOT BEEN VALIDATED.

**SOURCES:**

- BASEMAP FROM JAMES M. STEWART INC., LAND SURVEYORS, PHILADELPHIA, PA., (ELECTRONIC FILE: 292406.DWG DATED: 6/30/06)



**ROLLING KNOLLS LANDFILL SUPERFUND SITE  
 CHATHAM, NEW JERSEY  
 DATA GAP INTERIM REPORT**

**GROUNDWATER ANALYTICAL RESULTS  
 GREATER THAN NEW JERSEY  
 GROUNDWATER QUALITY CRITERIA**

**ARCADIS**

FIGURE  
**3**

**NJDEP Groundwater Quality Criteria**

Constituent	Value
<b>VOCs</b>	
1,4-Dioxane	10
Benzene	1
Dichlorodifluoromethane	1,000
Methylene Chloride	3
<b>SVOCs</b>	
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Benzo(b)fluoranthene	0.05
Benzo(k)fluoranthene	0.5
Bis(2-Chloroethyl) Ether	7
Bis(2-ethyl hexyl) phthalate	3
Dibenz(a,h)anthracene	0.3
Indeno(1,2,3-cd)pyrene	0.2
Pentachlorophenol	0.3
<b>PCBs (Aroclors)</b>	
Aroclor-1254	0.5
Total PCBs (Aroclors)	0.5
<b>Pesticides</b>	
4,4-DDT	0.1
alpha-BHC	0.02
beta-BHC	0.04
delta-BHC	0.03
Dieldrin	0.03
<b>Metals</b>	
Aluminum	200
Antimony	6
Arsenic	3
Beryllium	1
Cadmium	4
Chromium	70
Cobalt	100
Copper	1,300
Cyanide	100
Iron	300
Lead	5
Manganese	50
Nickel	100
Sodium	50,000
Thallium	2
Vanadium	60
Zinc	2,000